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Factors Influencing the Formation of Biofilms on Bacilli Model Systems

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Abstract

© 2016, Springer Science+Business Media New York.The ability to form biofilms in natural isolate Bacillus subtilis 168 and mutants with deleted genes of regulatory proteins AbrB, DegU, CcpA, and SpoOA, constructed on its basis, was investigated to elucidate the pathways regulating biofilm formation in B. subtilis. The B. subtilis 168 wild-type forms a biofilms in the liquid medium with maximum at 48th hour of culture growth. pH optimum for the biofilm formation in the wild-type strain is in the range of 7.4–8.0. Temperature optimum was in the range of 22 to 45 °C. The level of biofilm formation for all regulatory mutants was lower than that in the wild-type for 40–50 %. Temperature and pH optima for the mutant strains are the same as for the wild-type strain—7.4–8 pH and temperature of 22–45 °C.

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Keywords

B. subtilis, Biofilms, Ph optimum, Regulatory mutants, Temperature optimum